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Optimal taxation and inflation in an open economy

Abstract

In an inflationary environment, a government has the potential to acquire a greater amount of the country's resources. This inflation tax is thought to be logical by those who reason that, when a government relies upon distorting taxes as a means of raising revenue, it is then not only logical but also optimal to distort consumer choice of money holdings by means of inflation, which is a tax on money holdings. Kimbrough argues that this inflation tax cannnot be part of the optimal tax package in an open economy, for standard public finance maxims dictate that intermediate goods not be taxed for revenue-raising purposes when optimality is defined as the maximization of private sector utility.

Introduction to the inflation tax

Inflationary finance is a tactic which may be utilized by both the private and public sectors as a method of resource mobilization. There are three specific ways in which a government gains revenue from this tax. By printing more fiat money, a government commands greater resources by which it may finance expenditures or repay debt. Inflation also increases tax revenue when the tax system is not indexed. The inflation creates artificial capital gains which are taxed, pushes people into higher tax brackets, and causes the depreciation allowances to be insufficient to replace capital, in effect taxing a return of capital rather than a return on capital. Finally, inflation effectively reduces the amount of the real national debt, given that the inflation was unforeseen at the time of the debt agreement, as unforeseen inflationary environments are conducive to borrowers. (Friedman pp.27-28)

Analysis of the welfare effects of the inflation tax is best seen through the use of figure one. The demand for money curve represents the locus of points at which the opportunity cost of holding money equals the transactions costs saved from holding money; it is the curve representing the marginal cost versus the marginal benefit of holding money at various real interest rates. As the social cost of producing money is zero, the maximum net benefit accrued to holders of money is the total area under the curve. Thus, only when the nominal interest rate is equal to zero can the maximization of wealth be achieved. This policy prescription dictates that the rate of inflation should equal the negative of the real rate of interest.

Figure 1. The demand for money curve

Kimbrough's model

Experience has shown that the inflation tax is most often utilized by small open economies; therefore, it is necessary to examine the efficiency of the inflation tax in a model which incorporates the small open economy. Kimbrough is able to arrive at different conclusions regarding the optimal tax structure from previous work as a result of considering money as an intermediate good. From this, he models the consumer utility function as dependent solely on consumption of three different types of goods and leisure. The three types of goods from which consumers choose are nontraded goods, exportables, and importables. Nontraded goods and exportables are produced in the small open economy with the stipulation that nontraded goods are bought using the home currency and exportables are bought with the currency that minimizes indirect purchase costs. Importables are bought using the foreign currency, as transactions with large foreign countries are generally carrried out using the foreign currency.

Maximizing consumer utility can then be thought of as a three-step process, first choosing a level of real balances that maximizes the wealth that may be consumed. In choosing real balances, the consumer chooses levels of domestic and foreign money so that the marginal benefit of holding that type of money is equal to its opportunity cost (the savings in transactions costs resulting from the existence of money is equated to the real interest payment which is forgone as a result of holding that money). The next step in the process involves the selection of the currency to be used in the purchase of exportables. If the indirect purchase costs of domestic money (defined as the sum of transactions costs and inflation tax payments) is less than that of foreign money, then domestic money will be used to transact all purchases of exportables. In the opposite case, if the indirect purchase costs of foreign money is less than that of domestic money, then foreign money will be used to transact all purchases of exportables. The final step in the process involves the consumption of goods and leisure so as to maximize utility given the lifetime budget constraint.

As money appears in the budget constraint but not in the utility function, it makes sense to target the nominal interest rate at zero. Any positive nominal interest rate is an inefficient tax on money holdings, as people are forced to spend more time economizing on their balances of money, which is costless to produce. He argues that the reason that the inflation tax is to be viewed differently from taxes on goods and services is that the inflation tax causes the shrinkage of resources by which goods and services are produced, thereby causing a lowering in private sector utility. Intuitively, inflation creates a wedge between the marginal cost and marginal benefit of holding money. In a non-inflationary environment, people hold levels of real balances up to the point that the savings in transactions costs equals the forgone interest payments. The presence of inflation increases the marginal costs of holding money as people not only forego real interest payments on their money but incur a loss in purchasing power as a result of holding money.

The presence of foreign money can lead to a divergence from this policy of not taxing money. When there are importables produced in the home country, then Kimbrough states that, in some cases, it is optimal to deviate from the zero nominal interest rate and utilize the inflation tax. In the neighborhood of a zero nominal interest rate, there is no difference between commodity taxes and the inflation tax in raising tax revenue from purchases of nontraded goods and exportables. This is due to the fact that domestic money is used in these transactions. However, in the case of importables, domestic money is used in inframarginal purchases while foreign money is used at the margin and is not influenced by any domestic nominal interest rate above zero. Even though domestic money is the more efficient medium of exchange, foreign money must be used as a result of costs considerations in dealing with foreign countries (domestic money is used solely in inframarginal purchases of importables). Thus there is a potential lump-sum revenue (the opportunity cost of foreign money is greater than that of domestic money) that the government is able to capture, and as a result, can lessen the amount of distorting taxes that it levies to meet its revenue needs. This argument rests on the assumption that it is not economical to levy differential taxes on domestically produced importables, and can be extended to the case of goods which, for some reason, cannot be taxed by the government. In countries such as Italy where there is a high level of black-market activity, the inflation tax has been proferred as the next-best alternative. However, if the domestically produced importables can be directly taxed, then the nominal interest rate should be targeted at zero, as inflationary finance entails resource costs that direct taxes do not.

Conclusion

One of the problems that I encountered with Kimbrough's model is that, in the presence of labor taxes and thus a deviation from the policy of no taxation on intermediate goods, it would make sense to tax other intermediate goods such as money holdings. In a discussion with Professor Kimbrough, he argued that the taxes on labor are not to be considered as taxes on intermediate goods, as labor is implicitly included in the utility function via leisure. However, the assumption that money is solely an intermediate good and therefore not included in the utility function does not seem to hold in all instances. If we are dealing with a consumption framework in which consumers accumulate wealth for the purpose of transmitting it to their children, then money itself will be valued, as the accumulation of wealth is an end in itself. It is also not a far-fetched assumption that some people value money simply for the sake of having this money. More work on this subject is needed as Kimbrough's assumption is relaxed and money must be, to some extent, included in the utility function. But Kimbrough's work is an important contribution to economics, for it re-emphasizes the fact that the primary purpose of money in an economy is to minimize transactions costs.

Source

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